Intelligent Accidents

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Using neural networks in her visual arts process, Ivona Tau navigates the boundaries between control and accidents.

Originally from Vilnius, Lithuania, Tau took her first degrees in mathematics (2015) and photography (2018), both in Warsaw, Poland, where this year she just finished her Ph.D. in artificial intelligence. The math and computer science pursuits fulfilled her analytical and technical sides, allowing her to learn the building blocks of the universe and explore how the world works. As an experimental photographer working in the aesthetic realm, she never imagined all her pursuits coming together.

"For a very long time, they were quite separate, up until I heard about machine learning," she said. "It started appearing a few years after I graduated. For me, the concept of computer vision was super interesting, in a way that I could combine understanding of the digital file that captures a photograph with the kind of aesthetic values that I try to create when I'm shooting photography."

A refined interest in computer science then naturally developed as she started learning more about AI and neural nets. After stumbling upon generative algorithmic networks, she found herself in the middle of all sorts of new changes in computer vision. Artists were doing things that were not even possible five years earlier.

UNDER THE WAVES

The cover and Figure 1 are still images from Tau's collaboration with photographer Michael Schauer, a project called Under the Waves. Schauer took drone photographs of oceans in Iceland and Greenland, while Tau's photographs came from nighttime urban cityscapes. A neural network was then trained on the two disparate collections and allowed to imagine its own connections between them.

The results were poetic. The AI did not know what a city looked like underneath cataclysmic waves or free-flowing ocean tides, so it was forced to combine the two, as the artists explored latent spaces to locate points where the two datasets met each other, so they could interpolate across both visual domains, that is, across urban and nature, across the built environment and the natural world.

"It was one of those experiments where I tried to make AI imagine something that it has not seen in the training data, and try to push on this intersection as much as possible," Tau said. "And cities overflown with water, of course, has such a symbolic meaning, at the same time reflecting the world we live in. So there have been several reasons why I really liked this project. Aesthetically, philosophically, and also, technically."

However, this does not mean Tau views the neural network as a true "collaborator" in the human sense. She still misses the autonomy and the decisions a real person makes. To her, the network feels like a very elaborate random tool, like a sophisticated watercolor method or a paint splash technique, when the artist wields a random force but cannot fully control it.

The dance between control and accident characterizes the process. Many aspects do indeed remain on the human side, especially the final decision with regards to direction and the objects used on any final piece that gets made. At the same time, though, some things remain completely out of Tau's grasp.

"I'm not able to, myself, go through thousands of photographs and find the common themes or common features," she said. "I cannot fully understand what the neural network is doing underneath the hood. It's like this force that I work with that I cannot fully understand, but it's still tamed. It cannot go and do its own thing, at least not now."

Ultimately, Tau realized that what fascinated her most, in regards to generative art, AI, and experimental photography was the process of seeking something that had not been programmed, seeking for a mistake, seeking randomness. She understood the tools she was working with, but she still welcomed the role of chance procedures. She wanted to allow room for unexpected results. This was the case in both the analog photo world and the digital domain of AI.

"It has been very fascinating for me to see that, even in experimental photography, there are so many parallels with regard to what I do when using neural networks," she said. "This search for accident, this search for randomness is something that is very prevalent."

And speaking of thousands of photographs, Tau recently won Poland's Digital Arts 2020 contest

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FIGURE 1. Still from Under the Waves.

FIGURE 3. Unseen Warsaw: Seed 1423.

dedicated to art created with AI. Her project, [Un]seen Warsaw (see Figures 2 and 3), explores the city's architecture through AI-generated images. The AI trained on 3000 photos Tau shot along the streets of Warsaw in November 2020. The results look reliable and convincing, yet upon a closer look, certain deformities emerge. In reality, the buildings do not exist anywhere in Warsaw, yet they look real enough for viewers to imagine an alternative augmented version of the city. Tau is already selling NFTs of the images.

FIGURE 2. Unseen Warsaw: Seed 54.

BEYOND ANALOG AND DIGITAL

Currently, Tau is focusing on old-school analog techniques—paint, collodion, cyanotypes—and merging them with AI but also using long-form generative art on top of the possible AI-generated results. She wants to design an algorithm where each of the outputs could be curated by the end viewer, or just by a random seed with a limited number of outputs.

"On one hand, it's less control because you are not able to create the end result," she says. "But on the other hand, it is a lot more curation within the architecture of the algorithm itself, as you have to design it in such a way that every possible output within the boundaries of parameter values would be acceptable and in line with your creative vision."

To riff on Rumi, there is a chance field of accidents out beyond analog and digital. Tau will meet us there. Her plan is to ultimately shatter any previous distinction between the two. The AI would be data-driven, the procedural art more bounded by the parameter values, as well as analog techniques.

"Maybe in 10 years, we will call everything analog," she said. "Photography will be analog because all the content will be generated by AI. The definition of analog will shift."

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